

**REMARKS**

This Response is in reply to the Office Action mailed on June 15, 2006. Claims 1-5 and 7-10 are pending, claims 1 and 5 have been amended, and claim 6 has been cancelled herein. No new matter has been added. Entry and consideration of the amendments and following remarks is respectfully requested.

**REJECTION UNDER 35 USC § 112, SECOND PARAGRAPH**

Claims 1-10 stand rejected as indefinite. This rejection has been mooted by the amendments to claims 1 and 5 and the cancellation of claim 6.

**REJECTIONS UNDER 35 USC § 103(a)**

Claims 1-10 stand rejected as obvious over Brink et al. ('111) in view of Hess et al. ('619). Claim 2 stands rejected over Brink in view of Hess, and further in view of Dehaas ('968). Claim 10 stands rejected over Brink and Hess, and further in view of Purdy et al. ('637) and Hermessec ('908). Claim 6 was rejected over Tournier et al. ('433) in view of Hawley. The rejection of claim 6 is moot in view of its cancellation. The rest of the rejections are respectfully traversed.

Brink discloses a method and apparatus for separating chemicals and combustible components of black liquor in two successive steps. The process is intended to yield a clean and stable burning fuel that does not contain dimethyl sulfide or any other products of recombination reactions (col. 2, lines 10-25). This is achieved by converting the sulfur compounds of the black liquor to sodium sulphide and hydrogen sulfide that can easily be removed from gaseous fuel

(col. 2, lines 26-38). The object of Brink is to prevent the formation of atmospheric pollution in the combustion of black liquor.

The method of Brink is a modification of conventional gasification that has pyrolysis as the first step. The second step of Brink is a continuation of the first step in that *all* the reaction products from the first step are carried on to the second step despite their state. The product gas from the first step is passed along with the solids from the first step. Furthermore, Brink utilizes a common gasification system that comprises two successive reaction zones rather than an independent pyrolysis reactor. As a result, Brink does not gain any advantage with regard to the capacity of gasification.

In contradistinction, the claimed invention recovers product gasses from the pyrolysis reactor in a first step. Subsequently, only the solids that remain are taken to the second step in a gasification reactor. This gives the claimed invention the advantage with regard to the capacity of gasification. Most of the energy and material can be separated from the black liquor during the first step which is also the less expensive process. This provides a more efficient and cost effective process. Additionally, the claimed invention benefits from the separation of the product gasses removed from the pyrolysis reactor and the product gasses removed from the gasification reactor. The product gasses from each reactor have different compositions and different economic values. It is, therefore, beneficial to keep them separate.

Hess also fails to teach these claimed elements and their inherent advantages. Hess discloses a method for treatment of black liquor by means of wet carbonization. Wet carbonization differs from the separate pyrolysis and gasification steps recited in the claimed invention. Specifically, in contrast to wet carbonization, pyrolysis allows water to vaporize. Furthermore, the wet carbonization of Hess is not compatible with the process used in Brink

(successive pyrolysis and gasification that are *not separate*). Accordingly, there can be no motivation to combine the teachings of Hess with Brink. Furthermore, there can be no motivation to combine Brink and Hess because doing so would disrupt the well-performing process of Brink by recovering product gasses in the first step pyrolysis. Brink does not have recovering dimethyl sulfide as one of its aims. Rather, Brink aims at recovering sodium sulfide and hydrogen sulfide.

Assuming, *arguendo*, that one were to combine the teaching of Brink and Hess, the result would not be the claimed invention. Neither Brink nor Hess teach the *separate* pyrolysis and gasification steps of the claimed invention. Accordingly, claims 1-5 and 7-10 are patentable over the cited references. It is respectfully requested that the rejections of these claims be withdrawn.

The Dehaas reference also fails to teach the claimed invention even in combination with Brink and Hess. The shortcomings of Brink and Hess are not disclosed in Dehaas. Furthermore, specifically with regard to claim 2, the Dehaas reference does not teach a gasification reactor connected in parallel with a recovery boiler.

Similarly, the Purdy and Hermescec references do not teach the shortcomings of the primary references, Brink and Hess.

**CONCLUSION**

In view of the amendments to claims 1 and 5 made herein and the arguments presented above, it is submitted that the Examiner's rejections have been overcome and should be withdrawn. The application should now be in condition for allowance.

Should any changes to the claims and/or specification be deemed necessary to place the application in condition for allowance, the Examiner is respectfully requested to contact the undersigned to discuss the same.

This Response is being timely filed. In the event that any other extensions and/or fees are required for the entry of this Amendment, the Patent and Trademark Office is specifically authorized to charge such fee to Deposit Account No. 23-2820 in the name of Wolf, Block, Schorr & Solis-Cohen LLP. An early and favorable action on the merits is earnestly solicited.

Respectfully submitted,  
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